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WHAT IS CLAIMED IS:

1. An optical apparatus comprising:

a movable lens movable in an optical axis direction;

a lens drive unit which drives the movable lens;

an operating member operable within a predetermined movable range;

an operating member drive unit which drives the operating member within the predetermined movable range;

an operating member position detector which outputs a signal for detecting the position of the operating member;

a signal output unit which outputs a signal for moving the movable lens; and

a controller which controls the drive of the lens drive unit and the operating member drive unit;

wherein the controller controls the drive of the lens drive unit based on the signal from the operating member position detector and controls the drive of the operating member drive unit based on the signal from the signal output unit.

2. The optical apparatus according to Claim 1, comprising:

an optical system which comprises a variable power lens, and a focus lens as the movable lens, positioned at the image plane side of the variable power lens and performing

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focusing and compensation of the image plane variation that accompanies the movement of the variable power lens;

wherein the signal from the signal output unit is a signal for moving the focus lens in accordance with the detection result of the focusing state of the optical system.

3. The optical apparatus according to Claim 1, comprising:
an optical system which comprises a variable power lens as the movable lens;

wherein the signal from the signal output unit is a signal for moving the variable power lens in accordance with the operation of a zoom switch.

4. The optical apparatus according to Claim 1, further comprising:

a lens position detector which outputs a signal for detecting the position of the movable lens; and

a memory which stores information indicating the correspondence between the position of the operating member and the position of the movable lens;

wherein the controller judges, at each predetermined sampling period, whether or not the correspondence indicated by the information stored in the memory holds for the position of the operating member detected by the signal from the operating member position detector and the position of

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movable lens detected by the signal from the lens position detector,

and when the correspondence does not hold, the controller controls the drive of the lens drive unit so that the correspondence will hold for the detected position of the operating member and the detected position of the movable lens.

5. The optical apparatus according to Claim 1, comprising:
a lens apparatus which comprises the movable lens; and
a camera to which the lens apparatus is mounted.

6. A lens apparatus mountable to a camera, comprising:
a movable lens movable in an optical axis direction;
a lens drive unit which drives the movable lens;
an operating member operable within a predetermined movable range;

an operating member drive unit which drives the operating member within the predetermined movable range;

an operating member position detector which outputs a signal for detecting the position of the operating member;
and

a controller which receives a signal for moving the movable lens that is sent from the camera and controls the drive of the lens drive unit and the operating member drive

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unit;

wherein the controller controls the drive of the lens drive unit based on the signal from the operating member position detector and controls the drive of the operating member drive unit based on the signal from the camera.

7. The lens apparatus according to Claim 6, comprising:

an optical system which comprises a variable power lens, and a focus lens as the movable lens, positioned at the image plane side of the variable power lens and performing focusing and compensation of the image plane variation that accompanies the movement of the variable power lens;

wherein the signal from the camera is a signal for moving the focus lens in accordance with the detection result of the focusing state of the optical system.

8. The optical apparatus according to Claim 6, comprising:

an optical system which comprises a variable power lens as the movable lens;

wherein the signal from the camera is a signal for moving the variable power lens in accordance with the operation of a zoom switch.

9. The lens apparatus according to Claim 6, further comprising:

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a lens position detector which outputs a signal for detecting the position of the movable lens; and

a memory which stores information indicating the correspondence between the position of the operating member and the position of the movable lens;

wherein the controller judges, at each predetermined sampling period, whether or not the correspondence indicated by the information stored in the memory holds for the position of the operating member detected by the signal from the operating member position detector and the position of movable lens detected by the signal from the lens position detector,

and when the correspondence does not hold, the controller controls the drive of the lens drive unit so that the correspondence will hold for the detected position of the operating member and the detected position of the movable lens.

10. An optical apparatus comprising:

a movable lens movable in an optical axis direction;

a lens drive unit which drives the movable lens;

an operating member operable within a predetermined movable range;

an operating member drive unit which drives the operating member within the predetermined movable range;

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an operating member position detector which outputs a signal for detecting the position of the operating member;

a signal output unit which outputs a first signal and a second signal, each of which is a signal for moving the movable lens; and

a controller which controls the drive of the lens drive unit and the operating member drive unit;

wherein the controller controls the drive of the lens drive unit based on the signal from the operating member position detector, controls the drive of the operating member drive unit based on the first signal, and furthermore controls the drive of the lens drive unit based on the second signal.

11. The optical apparatus according to Claim 10, comprising:

an optical system which comprises a variable power lens; and a focus lens as the movable lens, positioned at the image plane side of the variable power lens and performing focusing and compensation of the image plane variation that accompanies the movement of the variable power lens;

wherein the first signal is a signal for moving the focus lens in accordance with the detection result of the focusing state of the optical system, and the second signal

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is a signal for moving the focus lens back and forth in the optical axis direction for an in-focus position search.

12. The optical apparatus according to Claim 10, comprising:

- a lens apparatus which comprises the movable lens; and
- a camera to which the lens apparatus is mounted.

13. A lens apparatus mountable to a camera, comprising:

- a movable lens movable in an optical axis direction;

- a lens drive unit which drives the movable lens;

- an operating member operable within a predetermined movable range;

- an operating member drive unit which drives the operating member within the predetermined movable range;

- an operating member position detector which outputs a signal for detecting the position of the operating member;
- and

- a controller which receives a first signal and a second signal, each of which is a signal for moving the movable lens and is sent from the camera, and controls the drive of the lens drive unit and the operating member drive unit;

- wherein the controller controls the drive of the lens drive unit based on the signal from the operating member position detector, controls the drive of the operating

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member drive unit based on the first signal, and controls the drive of the lens drive unit based on the second signal.

14. The optical apparatus according to Claim 13, comprising:

an optical system which comprises a variable power lens; and a focus lens as the movable lens, positioned at the image plane side of the variable power lens and performing focusing and compensation of the image plane variation that accompanies the movement of the variable power lens;

wherein the first signal is a signal for moving the focus lens in accordance with the detection result of the focusing state of the optical system, and the second signal is a signal for moving the focus lens back and forth in the optical axis direction for an in-focus position search.

15. An optical apparatus comprising:

a movable lens movable in an optical axis direction;

a lens drive unit which drives the movable lens;

an operating member operable within a predetermined movable range;

an operating member drive unit which drives the operating member within the predetermined movable range;

an operating member position detector which outputs a

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signal for detecting the position of the operating member;

a signal output unit which outputs a signal for moving the movable lens;

a controller which controls the drive of the lens drive unit based on the signal from the operating member position detector and controls the drive of the operating member drive unit based on the signal from the signal output unit;

a switching mechanism switchable between a transmitting state, in which a drive force is transmitted from the operating member drive unit to the operating member, and a non-transmitting state, in which the drive force is not transmitted; and

a switching detector which outputs a signal for detecting the state of the switching mechanism;

wherein the controller controls the drive of the operating member drive unit based on the signal from the signal output unit when the switching mechanism is detected to be in the transmitting state by the signal from the switching detector, and restricts the drive of the operating member drive unit based on the signal from the signal output unit when the switching mechanism is detected to be in the non-transmitting state.

16. The optical apparatus according to Claim 15,

wherein the controller performs a warning operation

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when the signal from the signal output unit is input with the switching mechanism being in the non-transmitting state.

17. The optical apparatus according to Claim 15, further comprising:

a switching mechanism drive unit which actuates the switching mechanism;

wherein the controller switches the switching mechanism to the transmitting state by means of the switching mechanism drive unit when the signal from the signal output unit is input with the switching mechanism being in the non-transmitting state.

18. The optical apparatus according to Claim 15, comprising:

a lens apparatus which comprises the movable lens; and
a camera to which the lens apparatus is mounted.

19. A lens apparatus mountable to a camera, comprising:

a movable lens movable in an optical axis direction;

a lens drive unit which drives the movable lens;

an operating member operable within a predetermined movable range;

an operating member drive unit which drives the operating member within the predetermined movable range;

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an operating member position detector which outputs a signal for detecting the position of the operating member;

a controller which controls the drive of the lens drive unit based on the signal from the operating member position detector, and controls the drive of the operating member drive unit based on a signal for moving the movable lens that is sent from the camera;

a switching mechanism switchable between a transmitting state, in which a drive force is transmitted from the operating member drive unit to the operating member, and a non-transmitting state, in which the drive force is not transmitted; and

a switching detector which outputs a signal for detecting the state of the switching mechanism;

wherein the controller controls the drive of the operating member drive unit based on the signal from the camera when the switching mechanism is detected to be in the transmitting state by the signal from the switching detector, and restricts the drive of the operating member drive unit based on the signal from the camera when the switching mechanism is detected to be in the non-transmitting state.

20. The optical apparatus according to Claim 19,

wherein the controller performs a warning operation when the signal from the camera is input with the switching

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mechanism being in the non-transmitting state.

21. The optical apparatus according to Claim 19, further comprising:

a switching mechanism drive unit which actuates the switching mechanism;

wherein the controller switches the switching mechanism to the transmitting state by means of the switching mechanism drive unit when the signal from the camera is input with the switching mechanism being in the non-transmitting state.

22. An optical apparatus comprising:

a movable lens movable in an optical axis direction;

a lens drive unit which drives the movable lens;

an operating member operable within a predetermined movable range;

an operating member drive unit which drives the operating member within the predetermined movable range;

an operating member position detector which outputs a signal for detecting the position of the operating member;

a signal output unit which outputs a signal for moving the movable lens;

a controller which controls the drive of the lens drive unit based on the signal from the operating member position

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detector and controls the drive of the operating member drive unit based on the signal from the signal output unit;

a switching mechanism switchable between a transmitting state, in which a drive force is transmitted from the operating member drive unit to the operating member, and a non-transmitting state, in which the drive force is not transmitted;

a switching detector which outputs a signal for detecting the state of the switching mechanism; and

a switching drive unit which actuates the switching mechanism;

wherein the controller drives the switching drive unit to switch the switching mechanism from the transmitting state to the non-transmitting state when the switching mechanism is detected to be in the transmitting state by the signal from the switching detector and there is a change in the signal from the operating member position detector while the operating member drive unit is not driven.

23. The optical apparatus according to Claim 22, comprising:

a lens apparatus which comprises the movable lens; and
a camera to which the lens apparatus is mounted.

24. A lens apparatus mountable to a camera, comprising:

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a movable lens movable in an optical axis direction;

a lens drive unit which drives the movable lens;

an operating member operable within a predetermined movable range;

an operating member drive unit which drives the operating member within the predetermined movable range;

an operating member position detector which outputs a signal for detecting the position of the operating member;

a controller which controls the drive of the lens drive unit based on the signal from the operating member position detector, and controls the drive of the operating member drive unit based on a signal for moving the movable lens that is sent from the camera;

a switching mechanism switchable between a transmitting state, in which a drive force is transmitted from the operating member drive unit to the operating member, and a non-transmitting state, in which the drive force is not transmitted;

a switching detector which outputs a signal for detecting the state of the switching mechanism; and

a switching drive unit which actuates the switching mechanism;

wherein the controller drives the switching drive unit to switch the switching mechanism from the transmitting state to the non-transmitting state when the switching

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mechanism is detected to be in the transmitting state by the signal from the switching detector and there is a change in the signal from the operating member position detector while the operating member drive unit is not driven.

25. An optical apparatus comprising:

a movable lens movable in an optical axis direction;

a lens drive unit which drives the movable lens;

an operating member operable within a predetermined movable range;

an operating member drive unit which drives the operating member within the predetermined range;

an operating member position detector which outputs a signal for detecting the position of the operating member;

a signal output unit which outputs a signal for moving the movable lens;

a memory which stores information indicating the correspondence between the position of the operating member and the position of the movable lens;

a controller which controls the drive of the lens drive unit based on the position information on the operating member detected by the signal from the operating member position detector and the correspondence information stored in the memory, and controls the drive of the operating member drive unit based on the signal from the signal output

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unit; and

an end position detector which outputs a signal for detecting that the operating member is positioned at an optical end corresponding position that is set at the inner side of the predetermined movable range;

wherein the controller corrects the correspondence information based on the position information on the operating member detected by the signal from the operating member position detector at the time the operating member has been detected to be positioned at the optical end corresponding position by the signal from the end position detector.

26. A lens apparatus mountable to a camera, comprising:

a movable lens movable in an optical axis direction;

a lens drive unit which drives the movable lens;

an operating member operable within a predetermined movable range;

an operating member drive unit which drives the operating member in the predetermined range;

an operating member position detector which outputs a signal for detecting the position of the operating member;

a memory which stores information indicating the correspondence between the position of the operating member and the position of the movable lens;

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a controller which controls the drive of the lens drive unit based on the position information on the operating member detected by the signal from the operating member position detector and the correspondence information stored in the memory, and controls the drive of the operating member drive unit based on a signal for moving the movable lens that is sent from the camera;

an end position detector which outputs a signal for detecting that the operating member is positioned at an optical end corresponding position that is set at the inner side of the predetermined movable range; and

wherein controller corrects the correspondence information based on the position information on the operating member detected at the time the operating member has been detected to be positioned at the optical end corresponding position by the signal from the end position detector.

27. An optical apparatus comprising:

a movable lens movable in an optical axis direction;

a lens drive unit which drives the movable lens;

an operating member operable within a predetermined movable range;

an operating member drive unit which drives the operating member within the predetermined range;

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an operating member position detector which outputs a signal for detecting the position of the operating member;

a signal output unit which outputs a signal for moving the movable lens;

a memory which stores information indicating the correspondence between the position of the operating member and the position of the movable lens;

a controller which controls the drive of the lens drive unit based on the position information on the operating member detected by the signal from the operating member position detector and the correspondence information stored in the memory, and controls the drive of the operating member drive unit based on the signal from the signal output unit; and

an end position detector which outputs a signal for detecting that the operating member is positioned at an optical end corresponding position that is set at the inner side of the predetermined movable range;

wherein the controller corrects the position information on the operating member that is used in controlling the drive of the lens drive unit, based on the position information on the operating member detected at the time the operating member has been detected to be positioned at the optical end corresponding position by the signal from the end position detector.

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28. A lens apparatus mountable to a camera, comprising:

a movable lens movable in an optical axis direction;

a lens drive unit which drives the movable lens;

an operating member operable within a predetermined movable range;

an operating member drive unit which drives the operating member in the predetermined range;

an operating member position detector which outputs a signal for detecting the position of the operating member;

a memory which stores information indicating the correspondence between the position of the operating member and the position of the movable lens;

a controller which controls the drive of the lens drive unit based on the position information on the operating member detected by the signal from the operating member position detector and the correspondence information stored in the memory, and control the drive of the operating member drive unit based on a signal for moving the movable lens that is sent from the camera;

an end position detector which outputs a signal for detecting that the operating member is positioned at an optical end corresponding position that is set at the inner side of the predetermined movable range; and

wherein the controller corrects the position

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information on the operating member that is used in controlling the drive of the lens drive unit, based on the position information on the operating member detected at the time the operating member has been detected to be positioned at the optical end corresponding position by the signal from the end position detector.